

REMARKS

Claims 19-25 are presented for consideration, with claims 19, 22, 23 and 25 being independent.

Claims 19, 22, 23 and 25 stand objected to because of claimed subject matter that is allegedly not supported by the disclosure. This objection is respectfully traversed.

The claimed subject matter at issue relates to the feature of increasing and decreasing the scan speed of at least one of the first and second stages of the exposure apparatus. It is respectfully submitted that support for this feature can be found, among other portions of the specification, on page 17, line 14, through page 19, line 5. This portion of the specification includes a discussion of Figure 3B, which shows a dash-and-dot line depicting an increase and a decrease in speed and its effect on vibration amplitude.

Accordingly, it is respectfully submitted that the specification provides a full and complete description of Applicant's claimed invention and, therefore, reconsideration and withdrawal of the objection to the claims is respectfully requested.

Claims 19-25 stand rejected under 35 U.S.C. § 102(e) as allegedly being anticipated by Taniguchi '520. This rejection is respectfully traversed.

Claim 19 of Applicant's invention relates to a scan type exposure apparatus comprising a first stage on which a first object is placed, a second stage on which a second object is placed, and a projection optical system for projecting a pattern of the first object onto the second object. A scanning mechanism is arranged to scanningly move the first and second stages in a timed relation with each other, relative to the projection optical system, while the pattern of the first object is projected onto the second object, and a signal system is systemized to store data

corresponding to a change in an exposure condition. As claimed, the change in exposure condition is produced in response to scan motion of at least one of the first and second stages and in accordance with one of scan acceleration and scan speed, and wherein the data is measured beforehand by obtaining data of a projected image of the pattern of the first object, being formed on the second object through the projection optical system, while scanningly moving at least one of the first and second stages. As also claimed, the signal system is systemized to increase and decrease the scan speed of at least one of the first and second stages in an actual exposure process so as to compensate for a change in the exposure condition, while reflecting a correction value, as determined on the basis of the data stored, to the scan speed of at least one of the first and second stages.

Claim 22 relates to a device manufacturing method and corresponds substantially to claim 19. Claim 22, therefore, provides a signal system systemized to increase and decrease the scan speed of at least one of the first and second stages in an actual exposure process so as to compensate for a change in the exposure condition, while reflecting a correction value, as determined on the basis of the data stored, to the scan speed of at least one of the first and second stages.

Claims 23 and 25 both relate to a scan type exposure apparatus that includes first and second stages, a projection optical system, and a scanning mechanism as set forth in claim 19.

Claim 23 further includes storing means for storing data related to a shift in a projected image due to vibration of the projection optical system, and drive control means for increasing and decreasing a speed of at least one of the first and second stages so as to compensate for a change in the exposure condition, on the basis of the stored data.

In claim 25, a signal system is systemized to store data corresponding to a change in an exposure condition, wherein the change in the exposure condition is produced in response to scan motion of at least one of the first and second stages and in accordance with one of scan acceleration and scan speed, and wherein the data is measured beforehand by obtaining data of a projected image of the pattern of the first object, being formed on the second object through the projection optical system, while scanningly moving at least one of the first and second stages. The signal system is also systemized to increase and decrease the scan speed of at least one of the first and second stages in an actual exposure process, while reflecting a corrected value, as determined on the basis of the data stored with respect to deviation of the projected image of the pattern of the first object upon the second object, to the scan speed of at least one of the first and second stages.

In accordance with Applicant's claimed invention, the scan speed of at least one of the first and second stages can be increased and decreased in an actual exposure process in order to compensate for a change in an exposure condition.

As discussed in the previous Amendment filed December 7, 2004, the patent to Taniguchi relates to a scanning type exposure apparatus that includes a mask stage for scanning a mask across an illumination area on the mask, a projection optical system for projecting an image of a pattern on the mask onto a photosensitive substrate, and a substrate stage for scanning the photosensitive substrate across an exposure area. An image pick-up unit photoelectrically detects an image of a mark pattern on the mask, and a combining unit combines signals output from the image pick-up unit during a period in which the light receiving section is scanned across the exposure area in synchronization with scanning for the mark pattern across the illumination area.

Image formation characteristics or a position of the image of the mark pattern is determined on the basis of an output of the combining unit, which can be corrected before actual exposure. Correction is also performed by using synchronization errors or by using an edge scan type sensor in place of the image pick-up unit.

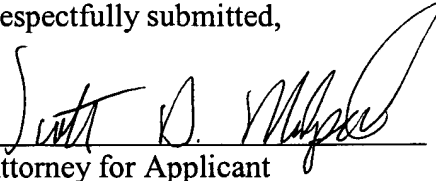
In contrast to Applicant's claimed invention, Taniguchi is not read to teach or suggest, among other features, increasing and decreasing the scan speed of at least one of the first and second stages in the manner set forth in Applicant's claimed invention. To the contrary, in Taniguchi, a change in an imaging characteristic caused by vibration of the exposure apparatus is corrected by lowering the scan speed. On this point, the Office Action asserts that Taniguchi teaches selecting an optimum velocity by measuring the image formation characteristics, and this would increase as well as decrease the scan speed (citing column 30, lines 30-54). It is respectfully submitted, however, that this portion of Taniguchi is read merely to disclose lowering the scanning velocity in order to reduce vibration and improve synchronization, and there is no teaching or suggestion of increasing the scanning velocity in order to select an optimum velocity, let alone changing the scan speed while reflecting a correction value or corrective value (as in claims 19, 22 and 25) or on the basis of stored data (as in claim 23).

Accordingly, reconsideration and withdrawal of the rejection of 35 U.S.C. § 102 (e) is respectfully requested.

Therefore, it is submitted that Applicant's invention as set forth in independent claims 19, 22, 23 and 25 is patentable over the cited art. In addition, dependent claims 20, 21 and 24 set forth additional features of Applicant's invention. Independent consideration of the dependent claims is respectfully requested.

Applicant's undersigned attorney may be reached in our Washington, D.C. office by telephone at (202) 530-1010. All correspondence should be directed to our address listed below.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Scott D. Malpede", is written over a horizontal line.

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